

We claim:

1. A process for purifying and cooling a gas stream comprising a dialkyl ester A) of an aromatic dicarboxylic acid, which comprises treating the gas stream with an aliphatic dihydroxy compound B) at a temperature less than/equal to the melting point of the dialkyl ester A) in a 1st stage and treating the gas stream with an aliphatic dihydroxy compound B) at above the melting point of the dihydroxy compound B) in at least one second stage.
2. A process as claimed in claim 1, wherein the dialkyl ester A) is an ester of terephthalic acid, isophthalic acid, 2,6-naphthalenedicarboxylic acid or a mixture thereof.
3. A process as claimed in claim 1 or 2, wherein the dialkyl ester A) has alkyl radicals having from 1 to 4 carbon atoms.
4. A process as claimed in any of claims 1 to 3, wherein the gas stream which is purified and cooled is a laden inert gas stream.
5. A process as claimed in any of claims 1 to 4, wherein the dihydroxy compound B) used is a diol having from 2 to 6 carbon atoms.
6. A process as claimed in any of claims 1 to 5, wherein the dihydroxy compound B) used is 1,4-butanediol.
7. A process as claimed in any of claims 1 to 6, wherein the dialkyl ester A) is dimethyl terephthalate.
8. A process as claimed in any of Claims 1 to 7, wherein the dihydroxy compound B) has a temperature above 140°C in the first stage and has a temperature of from 20 to 80°C in the second stage.
9. A process as claimed in any of claims 1 to 8, wherein the degree of saturation[%] of the gas stream with respect to the dialkyl ester is less than/equal to 50%.
10. A process as claimed in any of claims 1 to 9, wherein the gas stream contains less than 20 ppm by weight of the aromatic dialkyl ester A) after purification and cooling.